

SUBMISSION INSTRUCTION NO. 4

DESIGN PLANS AND REPORT FOR OTHER STORAGE AND TREATMENT UNITS

I. GENERAL. [§§ 330.C., 340.C., or 360.C., and 540.A. and 540.B., 9 VAC 20-80-10] Submit three copies of all plans and reports required by the regulations and listed in the instructions shown below. The design must be prepared by a firm registered to practice professional engineering in the Commonwealth and certified by a licensed professional engineer.

II. COMPOSTING FACILITIES. [§§ 330.C., 540.A., and 540.B., 9 VAC 20-80-10]

A. Site Layout.

1. General Site Plans. [§§ 540.A.1., 540.A.2., and 540.A.3., 9 VAC 20-80-10] Furnish the following general site plans:

a. Existing Site Conditions. [§ 540.A.1., 9 VAC 20-80-10] Show conditions existing at the site prior to the development of the facility.

b. Modification Plans. [§§ 540.A.2., 540.A.3., and 540.A.6., 9 VAC 20-80-10] Show a progression of site development through time and the final appearance of the site after installation of all engineering modifications. Include typical cross sections, as appropriate.

2. Site Access. [§§ 330.C.5., 540.A.5d, 540.A.5e, 540.A.6., and 540.B.1b, 9 VAC 20-80-10] Show how the site access is controlled to limit access and to prevent unauthorized entry. Indicate access roads to the gate and from the gate to the management areas. Specify the access road condition in the Design Report.

3. Utilities. [§ 330.C.6., 9 VAC 20-80-10] Describe the availability of the auxiliary power or standby equipment to ensure continuity of composting operations.

4. Aesthetics. [§§ 330.B. and 540.A.5f, 9 VAC 20-80-10] Show natural or artificial screening of the operation areas. Include the required buffer zone.

5. Location of Waste Management Areas. [§§ 330.C.1., 330.C.2, 330.C.3., , 330.C.6. and 540.A.5h, 9 VAC 20-80-10] Show the location of all waste management areas to include:

- Covered receiving areas for grading and segregation of wastes
- Sludge receiving areas
- Compost mixing and curing areas

Describe in the Design Report the type of surface used for the above areas.

6. Benchmarks. [§ 540.A.5b, 9 VAC 20-80-10] Show the location of the site benchmarks. Indicate in the Design Report or on the plans the benchmark information.

B. Process Unit Design. [§§ 330.C.4., 330.C.6., 540.A.4., 540.A.5i., 540.B.1a, and 540.B.3., 9 VAC 20-80-10] Show on the plans the engineering design of the process units. Include any construction notes that are needed. Discuss in the Design Report the following:

1. Surfacing of Handling Areas. Provide a description of the surfaces of receiving, mixing, curing and compost storage areas, demonstrating that the flow of liquids through the bases will be prevented. Describe the type of the base, its material, the base thickness and coating, if applicable.

2. Engineering Controls. Discuss the engineering controls incorporated into the design to address any of the following if applicable:

- Springs, seeps, groundwater intrusions:
- Gas, water, or sewage lines under the active areas; or
- Electrical transmission lines above or below the active areas.

3. Equipment. Show the detailed plans and specifications for all equipment to be used including equipment used to segregate wastes and standby equipment to ensure continuity of composting operations.

C. Liquids Management Systems. [§§ 330.C.2., 330.C.4., 540.A.5c, 540.A.5g, 540.A.6., and 540.B.2., 9 VAC 20-80-10] Provide information describing the design of systems to collect

and remove wastewaters, leachate, run-on, and run-off. The required information is shown below.

1. Leachate and Wastewaters.

a. Peak Flow. Estimate the leachate and wastewaters generation rate at the point of expected maximum. Describe data sources and methods used to make the calculations.

b. System Design. Describe the design features of the leachate and wastewaters collection and removal system (LWCRS) and indicate how the system will function in a timely manner.

(1) Grading. Demonstrate that the LWCRS is appropriately located. Show that the system is appropriately graded to assure that leachate and wastewaters would be drained.

(2) Sizing. Demonstrate that pipe sizes are sufficient to allow free leachate and wastewaters access to the drainage system.

2. Run-on Control System. Describe the system that will be used to prevent run-on onto the active process areas.

a. Peak Flow. Calculate the peak surface flow expected to result from a 25-year design storm. Describe the data sources and methods used to make the peak flow calculations.

b. Design and Performance. Describe the run-on control system design. Demonstrate that the designed system will prevent run-on from reaching active process areas.

c. Construction. Describe the methods to be employed to construct the run-on control system.

3. Run-off Control System. Describe the run-off control system to be used to collect and control run-off from active process areas.

a. Peak Flow. Identify the total run-off volume expected to result from a 24-hour 25-year storm. Describe data sources and methods used to make the peak flow calculations.

b. Design and Performance. Describe the run-off collection and control system design. Demonstrate that the system has sufficient capacity to collect and hold or transport the total run-off volume.

c. Construction. Describe the methods to be employed to construct the run-off collection and control system.

D. Waste Analyses. [§§ 330.C.1., 330.C.8., and 540.B.1., 9 VAC 20-80-10] Furnish composition analyses of sludge and solid wastes. Include the number and time distribution of the samples upon which the design was based. Describe how operational and quality control will be monitored. Include, if appropriate, the plans for the on-site laboratory facility.

III. TRANSFER STATIONS. [§§ 340.C., 540.A., and 540.B., 9 VAC 20-80-10]

A. Site Layout.

1. General Site Plans. [§§ 540.A.1., 540.A.2., and 540.A.3., 9 VAC 20-80-10] Furnish the following general site plans:

a. Existing Site Conditions. [§ 540.A.1., 9 VAC 20-80-10] Show conditions existing at the site prior to the development of the facility.

b. Modification Plans. [§§ 540.A.2., 540.A.3., and 540.A.6., 9 VAC 20-80-10] Show the final appearance of the site after installation of all engineering modifications. Include typical cross sections, as appropriate.

2. Site Access. [§§ 340.C.1., 340.C.5., 540.A.5d, 540.A.5e, 540.A.6., and 540.B.1b, 9

VAC 20-80-10] Show access roads to the gate and from the gate to the transfer areas. Specify the access road condition in the Design Report. Describe the on-site queuing capacity to be provided for the expected traffic so that waiting collection vehicles do not back up onto the public road. Show the method used in estimating the traffic volume.

3. Location of Waste Transfer Areas. [§ 340.C.4., 9 VAC 20-80-10] Show the location of all structures, buildings, ramps and waste transfer areas. Describe in the Design Report the materials of construction used for the above areas.

6. Benchmarks. [§ 540.A.5b, 9 VAC 20-80-10] Show the location of the site benchmarks. Indicate in the Design Report or on the plans the benchmark information.

B. Process Unit Design. [§§ 340.C.2., 340.C.7, 540.A.4., 540.A.5i, 540.B.3., 540.B.1a, and 540.B.3., 9 VAC 20-80-10] Show on the plans the engineering design of the transfer area. Include any construction notes that are needed. Discuss in the Design Report the following:

1. Surfacing of Handling Areas. Provide a description of the surfaces of receiving and storage areas, demonstrating that the flow of liquids through the bases will be prevented. Describe the type of the base, its material, the base thickness and coating, if applicable.

2. Equipment. Show the detailed plans and specifications for all equipment to be used.

3. Safety. Show truck wheel curbs and other safety features to prevent backing or falling into a pit, if applicable.

4. Waste Storage. If the facility is used for waste storage describe how the storage unit has been designed to reduce the potential for fires and migration of vectors and to prevent the escape of washwaters, odors, dust, and litter.

C. Liquids Management Systems. [§§ 340.C.2., 540.A.5c, 540.A.5g, 540.A.6., and 540.B.2., 9 VAC 20-80-10] Provide information describing the design of systems to collect and remove wastewaters, washwaters, leachate, and run-off, if any. The required information is shown below.

1. Leachate, Washwaters and Wastewaters.

a. Peak Flow. Estimate the leachate, washwaters and wastewaters generation rate. Provide data sources and methods used to make the calculations.

b. System Design. Describe the design features of the leachate, washwaters and wastewaters collection and removal system (LWCRS) and indicate how the system will function in a timely manner.

(1) Grading. Demonstrate that the LWCRS is appropriately located. Show that the system is appropriately graded to assure that leachate, washwaters and wastewaters would be drained.

(2) Sizing. Demonstrate that pipe sizes are sufficient to allow free liquids access to the drainage system.

2. Run-on Control System. Describe the system that will be used to prevent run-on onto the transfer areas.

a. Peak Flow. Calculate the peak surface flow expected to result from a 25-year design storm. Describe the data sources and methods used to make the peak flow calculations.

b. Design and Performance. Describe the run-on control system design. Demonstrate that the designed system will prevent run-on from reaching transfer areas.

3. Run-off Control System. Describe the run-off control system to be used to collect and control run-off from transfer areas.

a. Peak Flow. Identify the total run-off volume expected to result from a 24-hour 25-year storm. Describe data sources and methods used to make the peak flow calculations.

b. Design and Performance. Describe the run-off collection and control system design. Demonstrate that the system has sufficient capacity to collect and hold or

transport the total run-off volume.

IV. MATERIALS RECOVERY FACILITIES. [§§ 360.C., 540.A., and 540.B., 9 VAC 20-80-10]

A. Site Layout.

1. General Site Plans. [§§ 540.A.1., 540.A.2., and 540.A.3., 9 VAC 20-80-10] Furnish the following general site plans:

a. Existing Site Conditions. [§ 540.A.1., 9 VAC 20-80-10] Show conditions existing at the site prior to the development of the facility.

b. Modification Plans. [§§ 540.A.2., 540.A.3., and 540.A.6., 9 VAC 20-80-10] Show the final appearance of the site after installation of all engineering modifications. Include typical cross sections, as appropriate.

2. Site Access. [§§ 360.C.2., 360.C.8., 540.A.5d, 540.A.5e, 540.A.6., and 540.B.1b, 9 VAC 20-80-10] Show how the site access is controlled to limit access and to prevent unauthorized entry. Indicate access roads to the gate and from the gate to the management areas. Describe the on-site queuing capacity to be provided for the expected traffic so that waiting collection vehicles do not back up onto the public road. Specify the access road condition in the Design Report.

3. Utilities. [§ 360.C.9., 9 VAC 20-80-10] Describe the fire alarm and protection systems capable of detecting, controlling and extinguishing fires. Provide the basis for the design. Show the water supply system in the storage and receiving areas for cleaning purposes.

4. Aesthetics. [§ 540.A.5f, 9 VAC 20-80-10] Show natural or artificial screening of the operation areas.

5. Releases to Atmosphere. [§ 360.C.7., 9 VAC 20-80-10] Describe how the design will prevent the migration of odors and dust off-site.

6. Location of Waste Management Areas. [§§ 360.C.6. and 540.A.5h, 9 VAC 20-80-10] Show the location of all waste management areas to include:

- Waste unloading areas
- Waste receiving areas
- Waste tipping areas
- Waste storage areas
- Recycled materials storage areas

Describe in the Design Report the type of surface used for the above areas.

7. Benchmarks. [§ 540.A.5b, 9 VAC 20-80-10] Show the location of the site benchmarks. Indicate in the Design Report or on the plans the benchmark information.

B. Process Unit Design. [§§ 360.C..5., 360.C.6., 360.C.11., 540.A.4., 540.A.5i, 540.B.3., 540.B.1a, and 540.B.3., 9 VAC 20-80-10] Show on the plans the engineering design of the process units. Include any construction notes that are needed. Discuss in the Design Report the following:

1. Safety. Show truck wheel curbs and other safety features to prevent backing or falling into a pit, if applicable.

2. Equipment. Show the detailed plans and specifications for all equipment to be used.

3. Surfacing of Handling Areas. Provide a description of the surfaces of receiving and storage areas, demonstrating that they can be easily cleaned.

4. Bioremediation Facilities. Facilities conducting bioremediation must describe how the system has been designed:

- To be chemically resistant to waste or leachate;
- With sufficient strength and thickness to prevent collapse under the pressures exerted by overlying waste, waste cover materials and equipment used in the area;
- To provide operational temperatures that are favorable to the bioremediation process.

C. Liquids Management Systems. [§§ 360.C.3., 360.C.5., 540.A.5c, 540.A.5g, 540.A.6., and 540.B.2., 9 VAC 20-80-10] Provide information describing the design of systems to collect and remove wastewaters.

VI. EMERGENCY CONTINGENCY PLAN [§ 540.D., 9 VAC 20-80-10]. Furnish a copy of the emergency contingency plan that describes the actions that the facility personnel will take in the event of emergency situations. Along with the plan show evidence that the plan has been coordinated with local and state fire and emergency response agencies.